Abstract of the Disclosure

An electrode (30) implants into live tissue. The electrode has a first layer with a first silicon portion (50) forming a tip of the electrode and a second benzocyclobutene (BCB) portion (52) disposed adjacent to the first portion. A second BCB layer (56) is disposed over the first layer. A third BCB layer (58) is disposed over the second layer. The first layer further includes a third silicon portion (54) disposed adjacent to the second portion. A head-stage (40) has a connector (38) coupled for receiving the electrical signals from the electrode. A flexible substrate (90) has conductors for transmitting the electrical signals. A stiffener (94) supports a portion of the flexible substrate. An electronic circuit (96) is disposed on the flexible substrate above the stiffener and receives the electrical signals. A connector (12) is supported by the stiffener and coupled to an output of the electronic circuit.